AMENDMENTS TO THE CLAIMS

Claim 1. (Currently Amended)

A method for reduction of noise in an image including a plurality of pixels, comprising averaging pixel values over a region, comprising the steps of:

adding a selected pixel to the region;

grouping pixels adjacent the region in pairs, wherein the pixels of each pair being oppositely located with respect to said selected pixel;

adding said pairs, pair by pair, to the region in dependence on that the squared difference of the selected pixel value from the pairs half sums of the average value of the pixels in the region, does not exceed the dispersion of the noise of said difference multiplied by a tolerance level;

repeating said step of grouping and said step of adding said pairs until that, in said step of adding said pairs, the condition for adding said pairs is not fulfilled for any pair;

averaging the pixel values of said region; and

using the thus averaged pixel value for said selected pixel in reduction of noise in ~~reconstruction of~~ said image.

Claim 2. (Original)

The method as claimed in claim 1, wherein said step of grouping excludes grouping of pixels previously being grouped in pairs.

Claim 3. (Original)

The method as claimed in claim 1, wherein said step of adding said pairs excludes pairs that do not touch any of the pairs already included in said region.

Claim 4. (Original)

The method as claimed in claim 1, wherein said method is performed a second time and wherein said step of grouping during said second time only includes pixels rejected during the first performance of said method.

Claim 5. (Original)

The method as claimed in claim 1, wherein said step of adding said pairs is performed in dependence on that the squared difference of an average of pixel values in the region from the pairs half sum does not exceed the dispersion of said difference multiplied by a tolerance level.

Claim 6. (Currently Amended)

A method for reduction of noise in an image including a plurality of pixels, comprising the steps of:

obtaining a noise reduced value of a second ~~first~~ pixel located in a second image;

calculating an estimate of the fluctuation of said ~~noise reduced value of said first~~ second pixel;

calculating an estimate of the fluctuation of a first pixel located in said first image ~~at a second pixel~~, wherein said fluctuation of said first ~~second~~ pixel is correlated to said fluctuation of said second ~~first~~ pixel; ~~and~~

obtaining a noise reduced value of said first ~~second~~ pixel by subtracting said estimate of the fluctuation of the first pixel from said first ~~at said second~~ pixel; and

using said noise reduced value of said first pixel in reduction of noise in said first image.

Claim 7. (Currently Amended)

The method as claimed in claim 6, wherein the absolute value of said correlation is at least 0.8~~, preferably 0.9, and more preferably 0.95~~.

Claim 8. (Cancelled)

Claim 9. (Currently Amended)

A method for reduction of noise in an image including a plurality of pixels, comprising averaging pixel values over a first region around a selected pixel, comprising the steps of:

finding a second pixel corresponding to said selected pixel;

adding said second pixel to a second region;

grouping pixels adjacent the second region in pairs, wherein the pixels of each pair being oppositely located with respect to said selected pixel;

adding said pairs, pair by pair, to the second region in dependence on that the squared difference of the selected pixel value from the pairs half sums of the average value of the pixels in the region, does not exceed the dispersion of the noise of said difference multiplied by a tolerance level;

repeating said step of grouping sand said step of adding said pairs until that, in said step of adding said pairs, the condition for adding said pairs are not fulfilled for any pair;

averaging the pixel values of the first region, which corresponds to the second region; and

using the thus averaged pixel value for the selected pixel of said first region in reduction of noise in ~~reconstruction of~~ said image.

Claim 10. (Original)

The method as claimed in claim 9, wherein said step of grouping excludes pixels previously grouped in pairs.

Claim 11. (Original)

The method as claimed in claim 9, wherein said step dispersion is based on the region instead of said selected pixel.

Claim 12. (Original)

The method as claimed in claim 9, wherein said step of adding said pairs is performed in dependence on that the squared difference of an average of pixel values in the region from the pairs half sum does not exceed the dispersion of said difference multiplied by a tolerance level.

Claim 13. (Original)

The method as claimed in claim 9, wherein said second region is located in an image, which is different than the image wherein said first region is located.

Claim 14. (Currently Amended)

The method as claimed in claim 9, wherein said noise reduced image is further noise reduced by the method ~~according to claim 6~~ of obtaining a noise reduced value of a second pixel located in a second image;

calculating an estimate of the fluctuation of said second pixel;

calculating an estimate of the fluctuation of a first pixel located in said first image, wherein said fluctuation of said first pixel is correlated to said fluctuation of said second pixel;

obtaining a noise reduced value of said first pixel by subtracting said estimate of the fluctuation of the first pixel from said first pixel; and

using said noise reduced value of said first pixel in reduction of noise in said first image.

Claim 15. (Currently Amended)

The method as claimed in claim 9, wherein said noise reduced image is further noise reduced by the method ~~according to claim 1~~ of adding a selected pixel to the region;

grouping pixels adjacent the region in pairs, wherein the pixels of each pair being oppositely located with respect to said selected pixel;

adding said pairs, pair by pair, to the region in dependence on that the squared difference of the selected pixel value from the pairs half sums of the average value of the pixels in the region does not exceed the dispersion of the noise of said difference multiplied by a tolerance level;

repeating said step of grouping and said step of adding said pairs until that, in said step of adding said pairs, the condition for adding said pairs is not fulfilled for any pair;

averaging the pixel values of said region; and

using the thus averaged pixel value for said selected pixel in reduction of noise in said image.

Claim 16. (Original)

A computer program product directly loadable into the internal memory of a computer said computer program product comprising software code portions for performing the method as claimed in claim 1 when said computer program product is run on said computer.

Claim 17. (Original)

A computer program product directly loadable into the internal memory of a computer, said computer program product comprising software code portions for performing the method as claimed in claim 6 when said computer program product is run on said computer.

Claim 18. (Original)

A computer program product directly loadable into the internal memory of computer, said computer program product comprising software code portions for performing the method as claimed in claim 9 when said computer program product is run on said computer.

Claim 19. (New)

The method as claimed in claim 6, wherein said noise reduced value of said second pixel is obtained without use of said first image.

Claim 20. (New)

The method as claimed in claim 6, wherein said first image is reconstructed from a third image S1 and a fourth image S2 and said second image is also reconstructed from S1 and S2, and wherein said estimate of the fluctuation of said first pixel is calculated by the formula:

$$F(Y)\frac{V(p(X,I_1),p(Y,I_2))}{V(p(Y,I_2),p(Y,I_2))}$$

wherein F(Y) is the fluctuation of the second pixel and V is the covariance between pixel values p of the first pixel X in the first image I_1 and of the second pixel Y in the second image I_2, and wherein $V(p(X,I_1), p(Y,I_2))$ is estimated by the formula:

$$\left(\frac{\partial a}{\partial S_1}\right)\left(\frac{\partial v}{\partial S_1}\right)D_1+\left(\frac{\partial a}{\partial S_2}\right)\left(\frac{\partial b}{\partial S_2}\right)D_2,$$

and $V(p(Y,I_2),p(Y,I_2))$ is estimated by the formula:

$$\left(\frac{\partial b}{\partial S_1}\right)^2 D_1+\left(\frac{\partial b}{\partial S_2}\right)^2 D_2,$$